

*A Monographic Revision and Synopsis of the Trichoptera of the European Fauna.* By ROBERT M'LACHLAN. Parts I.-III. 8vo. London: Van Voorst. Berlin: Friedländer, 1874-1875.

THERE is so much of the influence of fashion in the study of entomology that one might almost number upon one's fingers the naturalists who devote any attention to insects not belonging to one or other of three orders. The great majority commence by collecting Lepidoptera, and never get much further; a considerable number of the rest give their minds up to Coleoptera; whilst a few choice spirits take up the study of certain families of Hymenopterous insects, such as the bees, wasps, sandwasps, and sawflies. But outside these bounds the entomological field finds few labourers, although it must be admitted that greater interest attaches to some of the other orders, at least from a philosophico-zoological point of view, than to those which are generally studied. This is especially the case with the insects belonging to the orders Orthoptera and Neuroptera, both as including the oldest known forms of the class, and as presenting peculiarities of structure and life-history which give them the highest importance in those discussions as to the classification of insects, and especially as to the possible genetic relations of those animals among themselves and with other groups of Annulosa, which, since the prevalence of theories of evolution, have acquired such prominence.

The Trichoptera, regarded by Kirby, Stephens, and Westwood as constituting a distinct order, are not perhaps in this respect of so much interest as some other divisions of the old order Neuroptera; and although the history of their metamorphoses undoubtedly has its attractive side, the perfect insects themselves are not distinguished for their beauty, or for any striking variety of form and colouring such as might induce the ordinary collector to pay attention to them. The minuteness of the characters by which the genera and species are to be distinguished renders their study rather difficult; and doubtless this also accounts partially for the neglect with which they have generally been treated.

To this neglect, however, there have been some striking exceptions. In this country that universal genius, Dr. Leach, devoted a good deal of attention to the Trichoptera, published descriptions of some genera and species, and even projected a special work upon them, which, however, never made its appearance. Leach was followed in Britain by Stephens and Curtis, both of whom described many new forms and introduced several new generic groups. Abroad the most important early work specially devoted to the Trichoptera was Pictet's treatise on the Phryganides of Switzerland, published some forty years ago; Kolenati in 1848 produced a revision of the genera and species of the group; and since that date many memoirs on these insects, especially by Hagen and Brauer, have appeared in German natural-history periodicals.

In England at the same time we have had one entomologist

working in the most painstaking and earnest manner upon this difficult group of insects; and Mr. M'Lachlan's papers relating to it, which have appeared from time to time in the publications of the Linnean and Entomological Societies, and in other periodicals both in this country and abroad, have furnished sufficient evidence of his determination to arrive, if possible, at trustworthy results in the discrimination and classification of the group. His most important contribution to TrichopteroLOGY (if we may use such a term) is undoubtedly his monograph of the British species of the group, published in 1865 in the Transactions of the Entomological Society. Of this he says, in the introduction to the work of which the title stands at the head of this notice, that "the experience of nearly ten years appears to show that this work has been of some service to European entomologists generally;" and, indeed, considering the conscientious care with which it had evidently been prepared, we can easily believe that this modest claim to merit is more than justified. Nevertheless the author confesses "to having for a long time been dissatisfied with it. There are many points of detail," he says, "concerning which time has proved my earlier views to have been erroneous, or at any rate badly expounded; and the figures—however gratifying to me they may have been in 1865—were ill-drawn, and their original defects magnified by bad engraving." How far we are bound to accept Mr. M'Lachlan's estimate of the value of his own work may be a question; but there can be no doubt that entomologists have every reason to be thankful that he has formed it, seeing that his doing so has led to his undertaking the labour of preparing the monographic revision of the Trichoptera of the European faunal region, the first three parts of which are now before us. His object in this work is to describe, figure, and classify all the Trichoptera inhabiting Europe, Northern Asia, and the Mediterranean district, the materials for which now existing in collections he estimates will represent from 250 to 300 species, although he anticipates that new forms will probably be brought under his notice during the progress of the work. But the amount of labour involved in the revision of these species cannot well be estimated from the smallness of their number; the minuteness of the characters distinguishing the genera and species (which are in many cases derived more or less exclusively from the peculiarities of the anal appendages) necessitates an enormous amount of careful examination, whilst the neglect or misinterpretation of these characters by the earlier describers adds immensely to the labour of determining the species noticed by them; and the further fact that many of the descriptions of species were written by entomologists who had made no special study of these insects adds greatly to the difficulties of nomenclature. In fact, considering how little the study of the Trichoptera has been in fashion among entomologists, the number of synonyms pertaining to many of the species is really wonderful.

From its nature Mr. M'Lachlan's work is scarcely open to criticism, except upon points of detail, into which no one who has not made

the Trichoptera his special study can enter without presumption. The author describes the general structure of the Trichoptera, and characterizes the families, genera, and species constituting the group, tabulating them in each case in order to facilitate the task of discrimination. The synonymy of the species is given in full; and we would suggest that the synonymy of the genera should also be given, as at present many contractions of generic names appear in the specific synonymy, the meaning of which the student cannot ascertain without referring to other works.

With regard to the position of the Trichoptera in the system, Mr. M'Lachlan is not inclined to adopt either of the two plans of dealing with the Linnean Neuroptera advocated by different schools of entomologists. He would neither retain the old order in its integrity, nor, removing the groups with imperfect metamorphosis to the Orthoptera, restrict the term Neuroptera to the Planipennia and Trichoptera, which he thinks "do not show sufficient connexion to warrant their being considered co-ordinate." His own inclination would be to split up the Neuroptera of the older entomologists into several orders, of which, under such treatment, the Trichoptera would undoubtedly be one; and in his present, as in former works, he treats them as constituting an order.

As to the question of the relationship of the Trichoptera to the Lepidoptera, there is, of course, room for considerable difference of opinion. Mr. M'Lachlan strongly maintains that there is such a relationship, and that it "bears the impress of actual homology rather than of casual analogy." In this view, notwithstanding the objections that may be urged against it, we are inclined to think he is in the right; the perfectly phalænid facies of so many of the smaller Trichoptera, the clothing of the wings, the state of the buccal organs, the form and structure of the larvæ, and even their habits, all seem to point towards a direct alliance with some of the Micro-lepidoptera or with the Psychidæ.

The figures which illustrate this work, and show in outline the venation of the wings and the characters of the anal appendages and other organs upon which Mr. M'Lachlan depends for the discrimination of the genera and species, are all drawn by himself under the microscope, and certainly show a great advance, both in execution and in fulness of detail, upon those accompanying his *Monograph of the British Caddis Flies*. The details of each species are represented; and, so far as we are acquainted with the objects, the figures leave nothing to be desired.

In concluding this notice we can only express a hope that entomologists will regard it as a duty to subscribe to a work which is in every way one of the most creditable that has appeared in Britain for a long time, and thus, as far as possible, prevent what is undoubtedly a labour of love on the part of the author from being at the same time a heavy loss to him.